

## **EXECUTIVE SUMMARY**

### **Development of SCALE-based Educational Modules to Innovate Reactor Physics and Criticality Safety Curricula**

This project will be led by the University of Tennessee and by Texas A&M University, which operate two of the largest nuclear engineering departments, and serve the two largest undergraduate nuclear engineering populations in the US. Therefore, this partnership directly maximizes the impact of the proposed project's benefits upon the growing US nuclear engineering student population. A summary of the goals of this project include:

To develop innovative educational modules based on the SCALE nuclear analysis system to supplement instruction in reactor physics and criticality safety courses at nuclear engineering programs. The focus of the modules will be in the following four specific areas: Cross section processing, criticality calculations, lattice physics, and depletion & spent fuel isotopics.

To structure these educational modules into "standalone" educational tools able to independently provide substantial fundamental and interactive information on the inner workings behind cross-section development and processing for reactor physics, criticality safety, and other related applications

To "pilot launch" the developed educational modules at the University of Tennessee and at Texas A&M University within courses in their respective curricula.

To facilitate the availability of these educational materials to a wider and more diverse audience, such as new employees of the US NRC and to institutions serving under represented minorities seeking educational partnerships in nuclear engineering. Specifically, TAMU seeks to partner with Prairie View A&M University and Kingsville A&M University, while University of Tennessee seeks to partner with the University of Puerto Rico at Mayagüez.